



Extension of the known geographic distribution of *Lampronycteris brachyotis* (Dobson, 1879) (Mammalia, Chiroptera, Phyllostomidae): first records from the Cerrado of the Brazilian Midwest, in the state of Mato Grosso

Sérgio Lopes de Oliveira^{1*} and Karina de Cassia Faria²

1 Universidade do Estado de Mato Grosso, Programa de Pós Graduação em Ecologia e Conservação, Av. Prof. Dr. Renato Figueira Varella, s/n, Caixa postal 08, CEP 78690-000, Nova Xavantina, MT, Brazil

2 Universidade do Estado de Mato Grosso, Faculdade de Ciências Agrárias, Biológicas e Sociais Aplicadas, Av. Prof. Dr. Renato Figueira Varella, s/n, Caixa postal 08, CEP 78690-000, Nova Xavantina, MT, Brazil

* Corresponding author. Email: sergiobiolopes@gmail.com

Abstract: *Lampronycteris brachyotis* is known to occur at 12 localities in 11 Brazilian states, encompassing the Amazon, Caatinga, Cerrado, and Atlantic Forest biomes. Here, we report the capture of two specimens in gallery forests within the Cerrado of the state of Mato Grosso. These records expand the known range of *L. brachyotis* into the Brazilian Midwest.

Key words: Phyllostominae, savanna, new record

Lampronycteris Sanborn, 1949 is a monotypic genus previously considered to be a subgenus of the genus *Micronycteris* (Nogueira et al. 2007). Its single species, the orange-throated big-eared bat, *Lampronycteris brachyotis* (Dobson, 1879), feeds mainly on insects, but may complement its diet with fruit, nectar, and pollen (Medellín et al. 1985; Weinbeer and Kalko 2004). In addition to the orange-colored fur on the neck ventral surface, this species also presents short pointed ears, forearm length ranging from 39 to 43 mm, and two large Y-shaped pads on the lower lip (Medellín et al. 1985; Nogueira et al. 2007; Reis et al. 2013).

Lampronycteris brachyotis is sensitive to habitat disturbance and tends to be associated to well-preserved areas (Medellín et al. 1983). In natural habitats, this species roosts in tree holes and small caves, and can forage far away from the roost, flying for up to three hours and covering long distances (e.g., 60 km) in a single night (Medellín et al. 1983; Weinbeer and Kalko 2004).

Originally thought to occur exclusively in the rainforests of Central America and the Amazon basin (Medellín et al. 1985), *L. brachyotis* is now known to

occur in three other Brazilian biomes, in addition to the Amazon: Atlantic Forest, Cerrado, and Caatinga (Scultori et al. 2009). It is not listed as threatened in Brazil (Chiarello et al. 2008), although little is known about of the exact limits of its geographic distribution. In Amazonia, *L. brachyotis* has been recorded in five states: (1) Acre (Marciente and Calouro 2009), (2) Amazonas (Sampaio et al. 2003), (3) Pará (Bernard et al. 2001), (4, 5) Amapá (Martins et al. 2011), and (6) Mato Grosso (Miranda et al. 2015). In the Atlantic Forest, the species has been recorded in four states: (7) Espírito Santo (Peracchi and Albuquerque 1985, 1993; Peracchi et al. 2011), (8) Bahia (Faria et al. 2006), (9) Paraná (Scultori et al. 2009), and (10) São Paulo (Taddei and Pedro 1996). *Lampronycteris brachyotis* has also been recorded in the state of Piauí (11), Caatinga biome, and in the state of Tocantins (12), Cerrado biome (Tavares et al. 2008) (Figure 1). Here we report the first records of *L. brachyotis* from the Cerrado of the Brazilian Midwest, in the state of Mato Grosso.

We captured two females of *L. brachyotis* (Figure 2), both in gallery forest habitats in the municipality of Barra do Garças, state of Mato Grosso. The first specimen was captured on 24 August 2013, at 19:00 h, in a gallery forest located on the edge of the Serra Azul State Park (PESA), a 11,000 ha area of Cerrado savanna (15°51'19.5" S, 052°15'14.4" W; 540 m). This specimen was captured during a 6-day bat survey at PESA, when ten ground-level mist nets (9×3 m) were opened each night, from nightfall to midnight. The second specimen was captured on 30 August 2013, at 21:30 h, on the slopes of the Serra do Roncador, near the BR-158 interstate highway, an area dominated by plantations

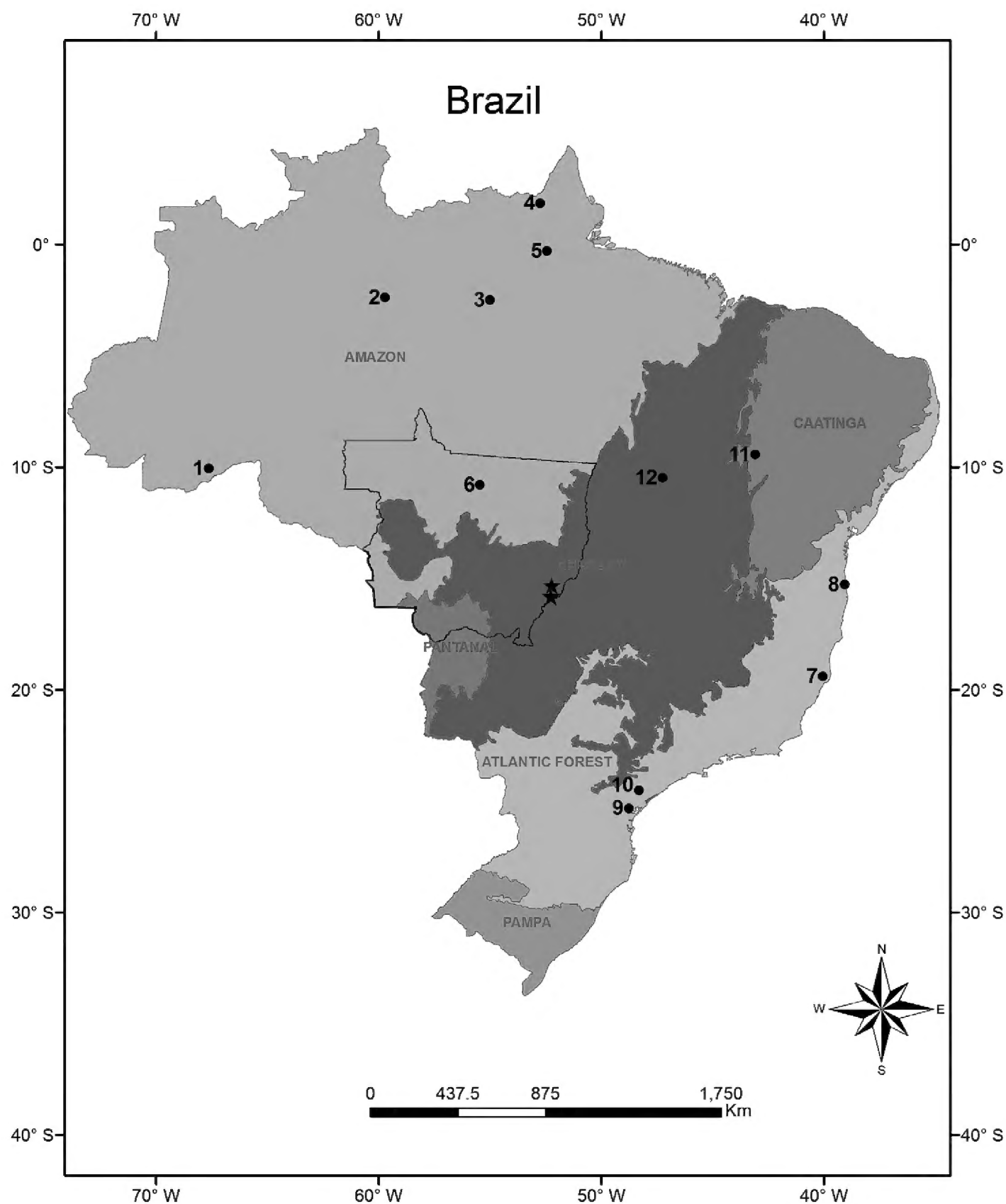


Figure 1. Geographic distribution of *Lamproncyteris brachyotis* in Brazilian biomes. The points represent previous records (the references are presented in the text) and the stars represent the new records for the Cerrado of the Brazilian Midwest, in the state of Mato Grosso (in black line).

(15°20'36.77" S, 052°13'0.56" W; 410 m). The survey at Serra do Roncador was carried out during 4 days, using five ground-level mist nets (9 x 3 m) each night.

The specimens were collected under the license no. 18276 (IBAMA) and are preserved in 70% alcohol in the scientific collection of the Nova Xavantina campus of Universidade do Estado de Mato Grosso (catalog numbers RM 353 and RM 361). They were identified based on their reddish coloration, forearm length, size and shape of ears and noseleaf, presence of two Y-shaped pads on lower lip, calcar length equal to foot length, and incisor characters (Vizotto and Taddei 1973; Mendellin et al. 1985; Williams and Genoways 2008; and Reis et al. 2013). External and cranial measurements (mm), taken as described by Vizotto and Taddei (1973), are as follows: forearm 42.2 and 42.9; greatest length of skull 20.8 and 20.9; condylocanine length 20.3 and 21.1; condylobasal length 20.7 and 21.4; maxillary tooththrow length 8.3 and



Figure 2. Specimen of *Lamproncyteris brachyotis* (RM 353) captured in Barra do Garças, state of Mato Grosso, Brazil.

8.9; zygomatic breadth 10.5 and 10.1; braincase width 8.7 and 8.8; mastoid width 9.4 and 9.0; postorbital width 4.9 and 5.3; width across molars 7.2 and 7.0; width across canines 3.7 and 4.4; greatest length of mandible 14.0 and 14.9, and length of mandibular toothrow 8.8 and 9.3. The specimens weighed 12 and 13 grams.

The new records from Mato Grosso extend the known distribution of *L. brachyotis* to central Brazil. There is another record from Mato Grosso, but in the Amazon biome (Figure 1), approximately 670 km north and west of the region of the present study (Miranda et al. 2015). Similarly, the only other record for the Cerrado biome is from a locality in the state of Tocantins (Tavares et al. 2008), about 800 km from our site.

Whereas Medellín et al. (1983) concluded that *L. brachyotis* may occur primarily in pristine habitats, our records were from degraded areas. The region of the middle Araguaia (eastern Mato Grosso), however, is of considerable biological importance, representing an Amazon-Cerrado ecotone. The chiropteran fauna of the vast majority of this region is still virtually unknown (Bernard et al. 2011). Irrespective of habitat disturbance, *L. brachyotis* appears to be associated to fluvial habitats, which not only provide relatively stable microclimates, but also tend to be relatively rich in feeding resources throughout the year (Ribeiro and Walter 2008). The records presented here further reinforce the need for new surveys, especially in Mato Grosso, which is highly diverse in ecological terms (Horta et al. 2002) and represents one of the least-studied regions for bats in Brazil (Bernard et al. 2011).

ACKNOWLEDGEMENTS

The authors are grateful to Adriano Silva dos Santos, Héllen Kézia Silva, Jaqueline Ribeiro Tavares, Loana Silva Souza, and Tatiane Pires de Sousa for their support in field sampling; and to Joaquim Manoel da Silva for preparing the map. This work was supported by FAPEMAT (Fundação de Amparo a Pesquisa do Estado de Mato Grosso) and CNPq (Conselho Nacional de Desenvolvimento Científico e Tecnológico).

LITERATURE CITED

- Bernard, E., A.L.K.M. Albernaz and W.E. Magnusson. 2001. Bat species composition in three localities in the Amazon Basin. *Studies on Neotropical Fauna and Environment* 36(3): 177–184. doi: 10.1076/snfe.36.3.177.2125
- Bernard, E., L.M.S. Aguiar and R.B. Machado. 2011. Discovering the Brazilian bat fauna: a task for two centuries? *Mammal Review* 41(1): 23–39. doi: 10.1111/j.1365-2907.2010.00164.x
- Chiarello, A.G., L.M.S. Aguiar, R. Cerqueira, F.R. Melo, F.H.G. Rodrigues and V.M.F. Silva. 2008. Mamíferos ameaçados de extinção no Brasil; pp. 681–702, in: A.B.M. Machado, G.M. Drummont and A.P. Paglia (eds.). *Livro Vermelho da Fauna Brasileira Ameaçada de Extinção*. Brasília: Ministério do Meio Ambiente. <http://www.icmbio.gov.br/portal/biodiversidade/fauna-brasileira/lista-de-especies/livro-vermelho>
- Faria, D., B. Soares-Santos and E. Sampaio. 2006. Bats from the Atlantic rainforest of southern Bahia, Brazil. *Biota Neotropica* 6(2): 1–13. <http://www.biotaneotropica.org.br/v6n2/pt/abstract?inventory+bno2406022006>
- Horta, A., B. Dias, C.V. Espírito Santo, C.R. Costa, C. Furlani, G. Hermann, G.A.B. Fonseca, H. Oliveira, L. Coradin, L.P. Pinto, L.C. Ros Filho, M.T.J. Pádua, P.G.P. Pereira, R.B. Cavalcanti, R. Magalhães, R. and S. Olivieri. 2002. Cerrado e Pantanal; pp. 175–214, in: C.M. Maury (Org.). *Biodiversidade brasileira: Avaliação e identificação de áreas e ações prioritárias para conservação, utilização sustentável e repartição dos benefícios da biodiversidade nos biomas brasileiros*. Brasília: Ministério do Meio Ambiente.
- Marciente, R. and A.M. Calouro. 2009. Mammalia, Chiroptera, Phyllostomidae, *Lampronnycteris brachyotis* (Dobson, 1879): First record in Acre, Brazil. *Check List* 5(4): 886–889. <http://www.checklist.org.br/getpdf?NGD128-09>
- Martins, A.C.M., E. Bernard, R. Gregorin and W.A.S. Silva. 2011. Filling data gaps on the diversity and distribution of Amazonian bats (Chiroptera): The case of Amapá, easternmost Brazil. *Zoologia* 28(2): 177–185. doi: 10.1590/S1984-46702011000200004
- Medellín, R.A., D. Navarro, W.B. Davis and V.J. Romeiro. 1983. Notes on the biology of *Micronycteris brachyotis* (Dobson) (Chiroptera), in southern Veracruz, Mexico. *Brenesia* 21: 7–11.
- Medellín, R.A., D.E. Wilson and D. Navarro L. 1985. *Micronycteris brachyotis*. *Mammalian Species* 251: 1–4. doi: 10.2307/3503912
- Miranda, J.M.D., L.S. Zago, F. Carvalho, M.B.G. Rubio and I.P. Bernardi. 2015. Morcegos (Mammalia: Chiroptera) da região do Médio Rio Teles Pires, Sul da Amazônia, Brasil. *Acta Amazonica* 45(1): 89–100. doi: 10.1590/1809-4392201400583
- Nogueira, M.R., A.L. Peracchi, and R. Moratelli. 2007. Subfamília Phyllostominae; pp. 61–98, in: N.R. Reis, A.L. Peracchi, W.A. Pedro and I.P. Lima (eds.). *Morcegos do Brasil*. Londrina: Nélcio R. dos Reis. http://www.uel.br/pos/biologicas/pages/arquivos/pdf/Morcegos_do_Brasil.pdf
- Peracchi, A.L. and S.T. Albuquerque. 1985. Considerações sobre a distribuição geográfica de algumas espécies do gênero *Micronycteris* Gray, 1866 (Mammalia, Chiroptera, Phyllostomidae). *Arquivos da Universidade Federal Rural do Rio de Janeiro* 8(1–2): 23–26. <http://r1.ufrj.br/labmasto/publicacoes/22.pdf>
- Peracchi, A.L. and S.T. Albuquerque. 1993. Quirópteros do município de Linhares, estado do Espírito Santo, Brasil. (Mammalia, Chiroptera). *Revista Brasileira de Biologia* 53(4): 575–581. <http://r1.ufrj.br/labmasto/publicacoes/32.pdf>
- Peracchi, A.L., M.R. Nogueira and I.P. Lima. 2011. Novos achegos à lista dos quirópteros do município de Linhares, estado do Espírito Santo, sudeste do Brasil (Mammalia, Chiroptera). *Chiroptera Neotropical* 17(1): 842–852. <http://chiroptera.unb.br/index.php/cn/article/view/14>
- Reis, N.R., M.N. Fregonezi, A.L. Peracchi and O.A. Shibatta. 2013. *Morcegos do Brasil: guia de campo*. Rio de Janeiro: Technical Books Editora Ltda. 252 pp.
- Ribeiro, J.F. and B.M.T. Walter, 2008. As principais fitofisionomias do Bioma Cerrado; pp. 151–199, in: S.M. Sano, S.P. Almeida and J.F. Ribeiro (eds.). *Cerrado ecologia e flora*. Brasília: Embrapa Informação Tecnológica.
- Sampaio, E.M., E.K.V. Kalko, E. Bernard, B.R. Herrera and C.O. Handley Jr. 2003. A biodiversity assessment of bats (Chiroptera) in a tropical lowland rainforest of Central Amazonia, including methodological and conservation considerations. *Studies on Neotropical Fauna and Environment* 38(1): 17–31. doi: 10.1076/snfe.38.1.17.14035
- Scultori C., D. Dias and A.L. Peracchi. 2009. Mammalia, Chiroptera, Phyllostomidae, *Lampronnycteris brachyotis* (Dobson, 1879): First record in the state of Paraná, southern Brazil. *Check List* 5(4): 872–875. <http://www.checklist.org.br/getpdf?NGD119-09>
- Taddei, V.A. and W.A. Pedro. 1996. *Micronycteris brachyotis*

- (Chiroptera, Phyllostomidae) from the state of São Paulo, Brazil. *Revista Brasileira de Biologia* 56(2): 217–222.
- Tavares, V.C., R. Gregorin and A.L. Peracchi. 2008. Sistemática: a diversidade de morcegos no Brasil; pp. 25–58, in: S.M. Pacheco, R.V. Marques and C.E.L. Esbérard (eds.). *Morcegos no Brasil: biologia, sistemática, ecologia e conservação*. Porto Alegre: Armazém Digital.
- Vizotto, L.D. and V.A. Taddei. 1973. Chave para determinação de Quirópteros brasileiros. *Boletim de ciências*. São José do Rio Preto: Faculdade de filosofia, ciências e letras 1: 1–72.
- Weinbeer, M. and E.K.V. Kalko. 2004. Morphological characteristics predict alternate foraging strategy and microhabitat selection in the orange-bellied bat, *Lamproncycteris Brachyotis*. *Journal of Mammalogy* 85(6): 1116–1123. <http://www.jstor.org/discover/10.2307/4094472>
- Williams, S.L. and H.H. Genoways. 2008. Subfamily Phyllostominae; pp. 255–299, in: A.L. Gardner (ed.). *Mammals of South America, Volume 1: marsupials xenarthrans, shrews, and bats*. 1st ed. Chicago: University of Chicago Press.
- Authors' contribution statement:** SLO and KCF collected the data and wrote the text.
- Received:** October 2014
- Accepted:** March 2015
- Editorial responsibility:** Marcelo R. Nogueira